# SCIENCE



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## *MEMORIAL OF THE FIRST HALF CENTURY OF THE SMITHSONIAN INSTITUTION.*

THE Smithsonian Institution was established by a law signed by President Polk, on August 10, 1846, and on the approach of the fiftieth anniversary of this event the Secretary and the Board of Regents began preparations for its commemoration. It was deemed impracticable to summon delegates from the world-wide affiliated scientific institutions to an assemblage in Washington, and therefore it was decided, as the simplest and most effective means of celebrating the jubilee, to publish a volume containing an account of the history, achievements and present condition of the Smithsonian Institution.

Such is the origin of the superb work recently issued by the Institution; superb in its mechanical features, dignified in its plan, and of incalculable value as a record of a most remarkable outcome of the legacy of James Smithson. The editorial supervision of the book was at first placed in the hands of Dr. James C. Welling, a Regent, but his untimely death necessitated the selection of another, and it was confided to Dr. G. Brown Goode, the Assistant Secretary, who had already drawn up the original plan. Unhappily Dr. Goode died before the completion of the task, but the manuscript was so far advanced that the task was finished upon the lines laid down by him.

The work is divided into two parts; the first deals with the History of the Smithsonian Institution in a series of chapters by the officers, and the second part consists of 'Appreciations of the Work' of the Institution, in fifteen chapters, written by scientists not organically connected therewith.

Samuel Pierpont Langley, Secretary of the Smithsonian, contributes a biography of James Smithson, based upon official records and embodying results of investigations made in England in 1894. From these it appears that owing to an erroneous inscription on Smithson's tomb at Genoa, the date of his birth has been usually given inaccurately; a record in Pembroke College places Smithson's birth in 1765, eleven years later than that previously assigned.

Professor Langley gives a graphic sketch of Smithson's life and scientific publications, and reproduces his notable will, all of which is familiar ground to readers of Science. Smithson once wrote: "The best blood of England flows in my veins; on my father's side I am a Northumberland, on my mother's I am related to kings, but this avails me not. My name shall live in the memory of man when the titles of the Northumberlands and the Percys are extinct and forgotten." This youthful ambition seems to have occurred to him at the time of making his will, for he bequeathed his property (under certain limitations) 'to the United States of America, to found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men.'

Smithson's monument is the Institution bearing his name; his grave at Genoa has been recently marked by a tablet placed by the Smithsonian, with an inscription naming him as its founder.

In a chapter on 'The Founding of the Institution 1835–1846,' Dr. George Brown Goode chronicles the events of the long period that elapsed between the receipt of the legacy by the United States in 1838 and the passage of the law establishing the Institution in 1846, during which plans of organization were discussed in Congress and in the press. A great university, an astronomical observatory, an agricultural school, a public library, a museum of natural history and geology, and other schemes, were advocated only to be discarded, and the final draft of the bill adopted was the result of a compromise. Dr. Goode points out the relations between the 'National Institution to promote science and the useful arts' and the proposed Smithsonian Institution; the former was founded in 1840 on a broad and liberal plan, and some of its members thought it ought to be custodian of the Smithson legacy. This was not sustained, but it is interesting to note that the Smithsonian Institution as finally organized followed quite closely the lines of the National Institution both as respects its superior officers and its list of objects.

Many influential persons contributed to the plan of organization. Dr. Goode points out that several of the most important features were due to Joel R. Poinsett, of South Carolina, viz.: The idea of an imposing and permanent building, the plan of a national museum with a staff of curators, the location of the Institution on the Mall, the main features of the Establishment, and the system of international exchanges of books. The library project was largely due to Rufus Choate and George P. Marsh, and the success in harmonizing the various plans that had been under discussion for ten years was due to Robert Dale Owen.

In the next succeeding chapter the same writer deals with the 'Establishment' and the Board of Regents, in an appendix to which Mr. William Jones Rhees gives concise biographies of the 129 distinguished persons who have filled the office of Regent.

A chapter of special interest is that on

'The Three Secretaries,' also by Dr. Goode. Joseph Henry, Spencer Fullerton Baird and Stephen Pierpont Langley are names indelibly grafted on American science, each occupying a distinct field. Henry's well-digested 'Programme of Organization,' the corner-stone of the edifice on which Baird built, has been often described. These sketches are written in a pleasing, forceful style, and contain biographies of the persons as well as their contributions to science and their labors for the Smithsonian Institution. That of the present Secretary contains details not easily found elsewhere.

Professor Langley writes of the 'Benefactors' of the Smithsonian, of which the most conspicuous is Thomas George Hodgkins, whose gift of $200,000 in 1891 created an epoch in the history of the Institution. The Hodgkins medals and prizes, recently awarded, and the capital prize to the discoverers of argon are well known.

The erection of the buildings and the care of the grounds are treated in a chapter by Dr. Goode. The corner-stone of the Norman building was laid May 1, 1847, and it was occupied in 1855, the structure having been paid for out of accumulated interest of the Smithson Fund. This fact is typical of the prudent management that has characterized the financial policy of the Secretaries and the Regents from the beginning, so that the present fund is double that of the original bequest of Smithson.

'The Smithsonian Library' and the 'Publications' are discussed in two distinct chapters by Dr. Cyrus Adler, and closely related to these is a chapter on 'The International Exchange System' by Professor William Crawford Winlock. These cover very fully what may be called the literary activity of the Smithsonian.

The idea of forming a great library was one of the earliest projects, even antedating the Institution itself, and at the outset a large proportion of the income was devoted to this feature; the transfer to the Library of Congress as a 'deposit' in 1866 was an excellent move, especially in view of the magnificent edifice in which the collection is now housed.

More than one of the writers pay high tribute to the learning and efficiency of the first librarian, Professor Charles Coffin Jewett, who filled the office from 1847 to 1855. The Smithsonian Deposit now numbers 357,000 books, pamphlets, periodicals and maps. The formation of this splendid library has been accomplished largely through the system of international exchanges, the magnitude of which is shown by the item that in 1895 107,118 packages weighing about 164 tons passed through the office.

The invaluable series of publications issued by the Smithsonian Institution has done more than anything else to elevate its position in the eyes of foreign savants. Dr. Adler, quoting Dr. Goode, points out that the value of the books distributed since the Institution was opened up to 1895 has been nearly one million dollars, being twice the original bequest of the founder.

Sixty-five pages of the handsome volume are devoted to the 'United States National Museum,' by Mr. Frederick William True, constituting an interesting record of this important department. Its formation from a nucleus contributed by the Patent Office and by the National Institute, its growth through results of explorations, and especially from the International Exhibitions held in 1876 and 1893, are herein described. The educational value of the great collections has been enhanced by the liberality of its Directors in sending duplicate specimens to institutions of learning, and especially by making displays of its treasures at the exhibitions held at London in 1883, Louisville in 1884, Minneapolis in 1887, Madrid in 1892, Chicago in 1893 and Atlanta in 1895. One of the results of

these periodical displays has been the revolutionizing of exhibition methods in the United States. Much space is given to reports of the Curators of the several departments and sections into which the Museum is divided; the larger divisions being as follows: Zoology, Botany, Geology, Anthropology and Arts and Industries. This chapter concludes with an account of the scientific publications of the Museum.

Dr. W J McGee contributes a graphic and vigorous essay on the history, policy and work of the 'Bureau of American Ethnology.' It clearly shows the immense value of the labors of the Bureau in collecting and preserving systematized knowledge of the North American Indians. Major J. W. Powell, the Director, found the science of anthropology young and scarcely developed when he took charge of the enterprise, and was obliged to devise methods of study as well as plans for making collections. The Bureau conducts explorations of mounds, studies in ethnology, archæology, pictography and linguistics of North America, and publishes four series of works which aggregate more than fifty volumes.

'The Astrophysical Observatory' is treated by its founder and Director, Professor S. P. Langley. The remarkable results accomplished in spite of a very inadequate environment with a small appropriation, first granted by Congress in 1891, testify to the industry and genius of its Director. The application of the spectro-bolometer to the examination of the infra-red spectrum is one of the topics discussed.

The youngest branch of the Smithsonian trunk, the 'National Zoological Park,' is described in a chapter by Dr. Frank Baker. The collection of animals for exhibition as museum specimens was supplemented by a collection of living animals which found temporary quarters in rude sheds behind the Institution building. From this small beginning was evolved the present fine park of 166 acres in a beautifully picturesque situation north of the city. In this park efforts are made to place the animals in congenial situations so that they may feel at home, so to speak. The collection includes herds of buffalo (bison), of llamas, of elk and of deer, as well as some valuable exotic animals. Owing to the insufficient appropriations by Congress this national enterprise has not made the progress hoped for by its founders, but the beginning is a good one.

Mr. Frederick William True writes of the 'Exploration Work of the Smithsonian Institution,' and a biographical sketch of George Brown Goode, by President David Starr Jordan, concludes Part I. of the volume.

The second part of the Memorial contains 'Appreciations of the work of the Smithsonian Institution,' divided as follows: Physics, by Thomas Corwin Mendenhall; Mathematics, by Robert Simpson Woodward; Astronomy, by Edward Singleton Holden; Chemistry, by Marcus Benjamin; Geology and Mineralogy by William North Rice; Meteorology, by Marcus Benjamin; Paleontology, by Edward Drinker Cope; Botany, by William Gilson Farlow; Zoology, by Theodore Gill; Anthropology, by Jesse Walter Fewkes; Geography, by Gardiner Greene Hubbard; and Bibliography, by the present writer. These reviews record the investigations carried on in the special fields named by officers and by those associated with the Institution, as well as the researches that have appeared in its publications. Credit is given to the individuals and to the Smithsonian, without whose aid many of the investigations would not have been undertaken.

Following these 'Appreciations' are three chapters as follows: 'The Cooperation of the Smithsonian Institution with other Institutions of Learning,' by Daniel Coit Gilman; 'The Influence of the Smith-

sonian Institution upon the development of libraries, the organization and work of societies and the publication of scientific literature in the United States,' by John Shaw Billings; 'Relation between the Smithsonian Institution and the Library of Congress,' by Ainsworth Rand Spofford. The mere enumeration of these descriptive titles explains the scope of the articles, and shows how fully the editor, Dr. G. Brown Goode, covered the entire field of the work within the Institution and its contact without during the first half century of its existence. In an appendix William Jones Rhees chronicles in order the principal events in the history of the Smithsonian. A full index closes the volume.

Twenty-four engravings and process-pictures of superior excellence are scattered through the book; they embrace views of the Smithsonian Institution and of the Hodgkins medal, with portraits of Smithson and of many of the Regents. As respects the typography, press-work, paper and binding no pains have been spared to make the book worthy of its subject. A small number of copies were bound in white vellum. For bibliographers the exact title is appended: The Smithsonian Institution, 1846–1896. The History of its First Half Century, Edited by George Brown Goode. City of Washington, 1897. Pp. x+856. Royal 8vo. Illustrated.

H. CARRINGTON BOLTON.

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*THE DIGNITY OF ANALYTICAL WORK.**

IT will doubtless be conceded by all that in the choice of the field to which one proposes to devote his life-work a number of things should be consulted. Among these may be mentioned not only mental capacity and the opportunities for training by courses of study which may be available to him, but also what may be termed natural inclination or love for the work. Just how much work should be given to each of these elements is a query not easily answered, but few will deny that genuine interest in or real love for the field of work chosen should be allowed as great sway as possible. Those of us who have gotten far enough along in our life-work to be able to look back somewhat, and to see and to differentiate the causes that have shaped our line of effort, know full well that circumstances beyond our control, rather than our inclinations and desires, have in many cases determined our course, but the fact nevertheless remains that for the best results, for the attainment of even moderate success, one's efforts must be in an agreeable field and his heart must be in his work. Fortunate is the man for whom circumstances so shape themselves that he is able to pass his years in the field of his choice and spend and be spent in work that is congenial to him.

Assuming now that, for most of us, circumstances and conditions have been such that we are spending our lives in the field of our choice, let us consider, for a moment, a tendency that seems to be a concomitant of those thus fortunately situated. Do we not occasionally find in ourselves a disposition to magnify the importance of the field in which we happen to be engaged? Are we not somewhat inclined, quite naturally perhaps, to think that our field of work is more important than that in which others are occupied? Does not the theoretical chemist, whose inclinations lead him to spend his time in writing reactions and building structural formulæ of wondrous architecture, often feel within himself that his work is on a higher and nobler plane than that of the patient analyst who has furnished the data which he uses? Does not the organic chemist who delights in the study of the carbon compounds, who can

* Presidential address delivered at the Washington meeting of the American Chemical Society, December 29, 1897.